FISHMAN, B.D., inzh.

Continuous casting of ferrosilicon. Stal' 22 no.6:526 Je '62.
(MIRA 16:7)

(Continuous casting)
(Ferrosilicon)

ROMANOVA, L.A. Prinimali uchastiye: GORBUNOVA, A.A., kand. tekhn. nauk; BEZHENUTSA, kand. tekhn. nauk; FISHMAN, E.A., inzh.; ZAYCHIKOVA, E.A., red. izd-va; BOROVNEV, N.K., tekhn. red.

[Asbestos-resin tiles]Asbestosmolianye plitki. Moskva, Gosstroiizdat, 1962. 138 p. (MIRA 15:9)

(Floors)

SOV/95-59-2-9/13

AUTHOR: Fishman, E.M., Engineer

TITLE: Production of Reinforced Concrete Supports for Lines of Communications (Opyt izgotovleniya zhelezobetonnykh opor liniy svyazi)

PERIODICAL: Stroitel'stvo truboprovodov, 1959,4,Nr 2, pp 23-24 (USSR)

ABSTRACT: The Kiyevskiy kombinat (Kiyev Combine) of the "Ukrgazneftestroy" Trust produces 2 standard types of supports for lines of communications: the KDRTS-and the PK type. The former has a double T section, 20 x 19 cm at the bottom and 11 x 11 cm at the top, 6.6 m long; the weight is 300 kg, bending moment 1.3 tm. The PK support is rectangular in section and has oval openings and a bending moment of 1.75, 2.75; 4.40 tm. Diameter and reinforcement depend upon the required bending moment. The supports are reinforced with welded framework. The metal mold for the type KDRTS consists of 2 halves and can be taken apart; the PK mold consists of a bottom, 2 removable sides and 2 wooden walls, the openings are obtained by inserts, which are removed after the concrete is hard. Molds can be used over and over again. Kiyev Combine has produced 3,000 supports using only 20 molds. Prior to filling the molds these are treated

Card 1/2

SOV/95-59-2-9/13

Production of Reinforced Concrete Supports for Lines of Communications

with oil waste; a vibrator is used for filling the molds. Out of each lot 2 supports are subject to tests. Each lot is furnished with a pass indicating the average breaking load obtained from 2 tests. The supports are intended for wooden or metal cross pieces which are to be fastened with the collars.
There are 2 photographs and 3 diagrams.

Card 2/2

FISHMAN, G.A.

PONOMAREVA, Ye.P., nauchnyy sotrudnik; FISHMAN, G.A., nauchnyy sotrudnik;
PASTERNAK, A.Ye., nauchnyy sotrudnik

Bacterial air pollution in workshops of the "Krasnyi Tekstil'shik" spinning and weaving mill. Gig. i san., 22 no.8:77-79 Ag '57.
(MLRA 10:9)

1. Iz Moskovskogo oblastnogo nauchno-issledovatel'skogo sanitarno-gigiyenicheskogo instituta
(AIR POLLUTION, determ.
bact., determ. in cotton textile factories)
(BACTERIA
in air, determ. in cotton textile factories)

ZAKHAROV, P.P., prof.; GUDKOVA, Ye.I., kand.biolog.nauk; PORUBINOVSKAYA, N.M., kand.med.nauk; FISHMAN, G.A.; KHANAZAROVA, N.A.

New data on immunological features in rheumatic fever and tonsillar diseases. Vop.revm. 2 no.3:12-17 Jl-S '62. (MIRA 16:2)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta ukha, gorla i nosa (dir. - prof. N.A. Bobrovskiy) Ministerstva zdravookhraneniya RSFSR.

(RHEUMATIC FEVER) (TONSILS--DISEASES) (IMMUNITY)

LITVAK, A.A.; FISHMAN, G.I.

Purification of waste waters from viscose fiber plants. Zhur. VKHO 6 no.2:142-150 '61. (MIRA 14:3)
(Sewage—Purification)(Textile fibers, Synthetic)

FISHMAN, G.I.

Composition, quantity, sanitation and hygiene evaluation of waste water from viscose fiber plants. Ochis. stoch. vod. no.3:72-93 '62. (MIRA 16:5)

(Viscose) (Industrial wastes--Purification)

MONGAYT, I.L.; FISHMAN, G.I.

Reagent methods of removing zinc from the waste water of viscose fiber plants. Ochis. stoch. vod. no.3:94-117 '62. (MIRA 16:5)
(Zinc) (Industrial wastes—Purification)

MONGAYT, I.L.; FISHMAN, G.I.

Study of the processes of waste water purification at viscose fiber plants. Ochis. stoch. vod. no.3:118-136 '62. (MIRA 16:5)
(Industrial wastes--Purification)

FISHMAN, G. M.

Dissertation: "Rational Method of Producing Natural and Concentrated Orange Juices."
Cand Tech Sci, Georgian Order of Labor Red Banner Agricultural Inst, 18 May 54.
Zarya Vostoka, Tbilisi, 5 May 54.

SO: SUM 284, 26 Nov 1954.

FISHMAN, G.M., kandidat tekhnicheskikh nauk.

Industrial method of obtaining tangerine juice. Trudy VNIIKP no.3:129-143 '54. (MLRA 9:8)

1. Batumskoye otdeleniya nauchno-issledovatel'skogo instituta kabel'noy promyshlennosti.

(cable)

(food preserving)? Konservnoy

(Fruit juices)

~~Ivanov, V.K~~

IVANOV, V.K.; FISHMAN, G.M.; SHAKHBAZYAN, Z.M.

The Shakhbazyan machine for removing seeds from apricots and plums. (MIRA 10:6)
Kons. i ov. prom. 12 no.2:4-7 '57.

1. Batumskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta konservnoy i ovoshchesushil'noy promyshlennosti (for Ivanov and Fishman).
2. Armyanskiy konservnyy trest.(for Shakhbazyan)
(Canning industry--Equipment and supplies) (Apricot) (Plum)

FISHMAN, G.M.; LOPATIN, Yu.T.; YURASOV, M.M.

IUrasov machine for removing seeds from apricots. Kons. i ov. prom. 13 no.6:4-5 Je '58. (MIRA 11:5)

1.Batumskiy nauchno-issledovatel'skiy institut konservnoy promyshlennosti (for Fishman, Lopatin). 2. Isfarinskiy konservnyy zavod (for Yarasov).

(Apricots) (Canning industry--Equipment and supplies)

FISHMAN, G.M.; LOPATIN, Yu.T.

Machines for peeling and slicing apples into circles.
Kons. i ov. prom. 13 no.8:12-14 Ag '58. (MIRA 11:9)

1. Batumskiy nauchno-issledovatel'skiy institut konservnoy promyshlennosti.
(Apples) (Canning and preserving--Equipment and supplies)

FISHMAN, G.M.

Transporting subtropical persimmon. Kons. i ov. prom. 13 no.9:31-34 S '58. (MIRA 11:10)

1. atumskiy nauchno-issledovatel'skiy institut konservnoy promyshlennosti.
(Persimmon--Transportation)

FISHMAN, G.M.; GUMANITSKAYA, M.N.

Processing of cherry plums for the manufacture of juices, beverages and concentrates. Kons. i ov.prom. 18 no.3:18-21 Mr '63.
(MIRA 16:3)

1. Batumskiy filial Nauchno-issledovatel'skogo instituta pishchevoy promyshlennosti soveta narodnogo khozyaystva Gruzinskoy SSR.
(Georgia—Cherry plums) (Canning and preserving)

FISHMAN, G.M.; RAVICH-SHCHERBO, P.A.; DEM'YANOVA, N.I.

Reducing the spoilage of persimmon during railroad transportation. Kons. i ov. prom. 18 no.8:32-33 Ag '63. (MIRA 16:8)

1. Batumskiy filial nauchno-issledovatel'skogo instituta pishchevoy promyshlennosti. (Persimmon--Transportation)

FISHMAN, G.M.; KUPREYSHVILI, A.Yu.

Losses in the weight of citrus fruits in railroad transporation. (MIRA 16:12)
Kons. i ov. prom. 18 no.11:33-36 N '63.

1. Batumskiy filial nauchno-issledovatel'skogo instituta pishchevoy promyshlennosti soveta narodnogo khozyaystva Gruzinskoy SSR.

FISHMAN, I.A.

Assembling panels of large-panel houses without using jigs. Suggested by I.A.Fishman. Rats.i izobr.predl.v stroi. no.8: 16-18 '58. (MIRA 13:3)

1. Po materialam tresta No.4 Ministerstva stroitel'stva BSSR.
(Precast concrete construction)

ARUSTAMOV, A.A.; FISHMAN, I.L.

Rare earth mineralization connected with the metamorphism of basic effusives. Trudy Lab. paleovulk. Kazakh. geo. un. no.2: 211-218 '63.

Transvaporization or metamorphism? Ibid.:219-224 (MIRA 17:11)

1. Kazakhskiy institut mineral'nogo syr'ya.

FISHMAN, I.M.

Fishman, I. M. On the motion of a strongly viscous liquid between a journal and a bearing. Akad. Nauk SSSR. Prikl. Mat. Meh. 14, 593–610 (1950). (Russian)

Ce problème a été étudié par différents auteurs dont N. Joukovsky, S. Tchapliguine et A. Sommerfeld qui l'ont résolu pour le cas stationnaire. W. Harrison a trouvé une solution approchée pour le cas non stationnaire lorsque le jeu (δ) entre le tourillon et le coussinet est très petit. Dans toutes ces recherches on a négligé les forces d'inertie du liquide. L'auteur étudie le cas non stationnaire en introduisant les forces d'inertie. On utilise l'équation de Navier-Stokes en coordonnées polaires pour un mouvement plan d'un liquide incompressible, en supposant le jeu (δ) très petit. En introduisant la fonction de courant, on obtient en première approximation une équation biharmonique, en négligeant dans le second membre les forces d'inertie. En deuxième approximation on introduit les termes d'inertie et l'on obtient une solution approchée de la fonction de courant pour un δ très petit. L'auteur étudie après le mouvement du tourillon pour une charge constante. Il résoud le système en utilisant la méthode de Kryloff et Bogolioubolf et montre que la solution de Harrison n'est pas tout à fait correcte; il démontre la stabilité de la solution de Joukovsky et Tchapliguine. L'auteur considère aussi le cas d'une charge périodique.

M. Kiveliovitch (Paris).

Source: Mathematical Reviews, Vol 12 No. 7.

SOV/137-57-11-22425

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 257 (USSR)

AUTHOR: Fishman, I.M.

TITLE: Relationship Between α -phase Point Rating and the Chemical Composition of Metal (Zavisimost' balla po α-faze ot khimicheskogo sostava metalla) in Ukrainian

PERIODICAL: Nauk zap. Zaporiz'k. derzh. ped. in-t, 1956, Vol 2, pp 79-82

ABSTRACT: Analysis of the results of tests of 400 heats of 1Kh18N9T steel by the methods of mathematical statistics yields an empirical equation permitting determination of α-phase point rating (by the Zaporozhstal' scale) for the specific composition of steel within the limits of permissible fluctuations. The basis of the calculation rests on methods of multiple correlation with consideration of the fact that Si, Cr, and Ti raise the α-phase point rating, while C, Mn, and Ni diminish it to various degrees. The resultant equation has the following appearance: $\alpha = -10.47C + 1.00\,Si - 0.11\,Mn + 0.50\,Cr - 0.28\,Ni + 1.63\,Ti - 4.73$. The total coefficient of multiple correlation is 0.434, and this bears witness to the adequate reliability of the results thereof. The equation derived is used in the daily practice of the plant.

M. Sh.

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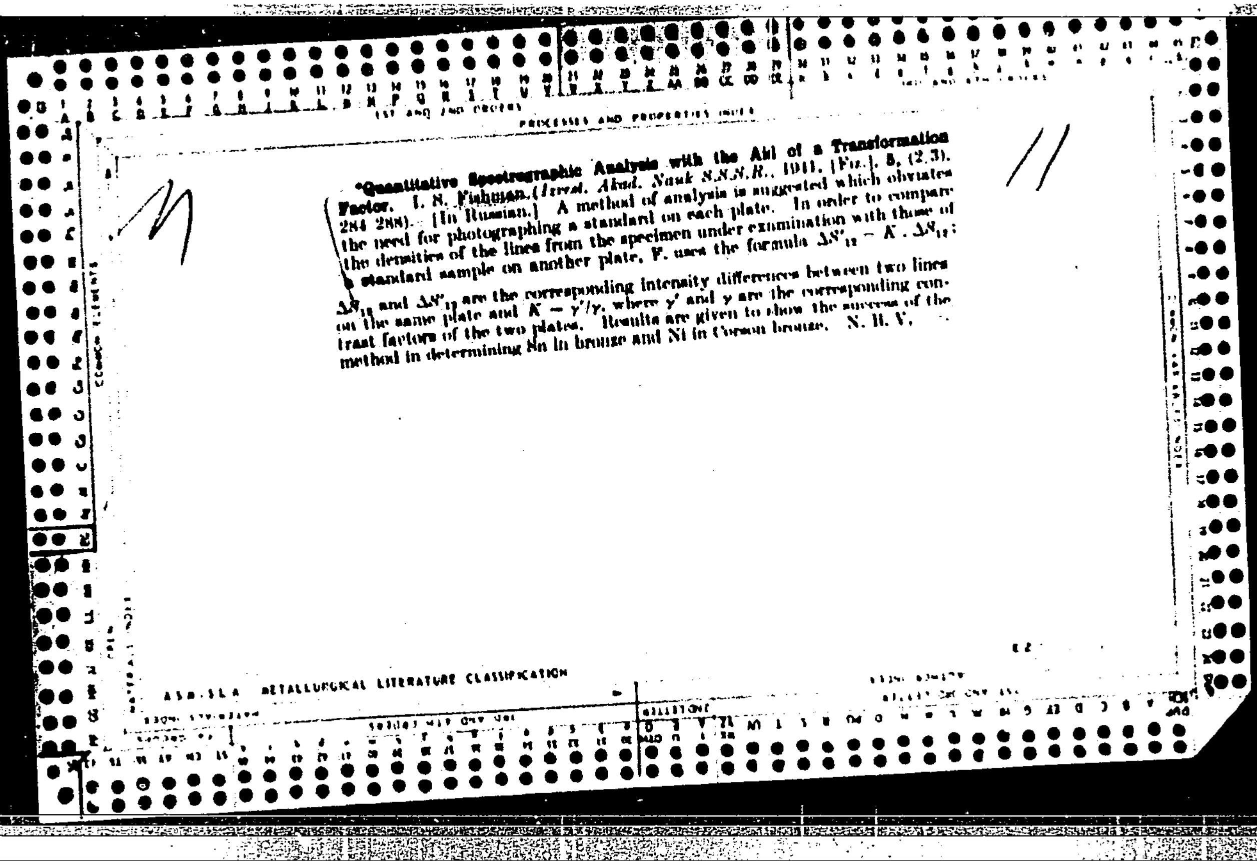

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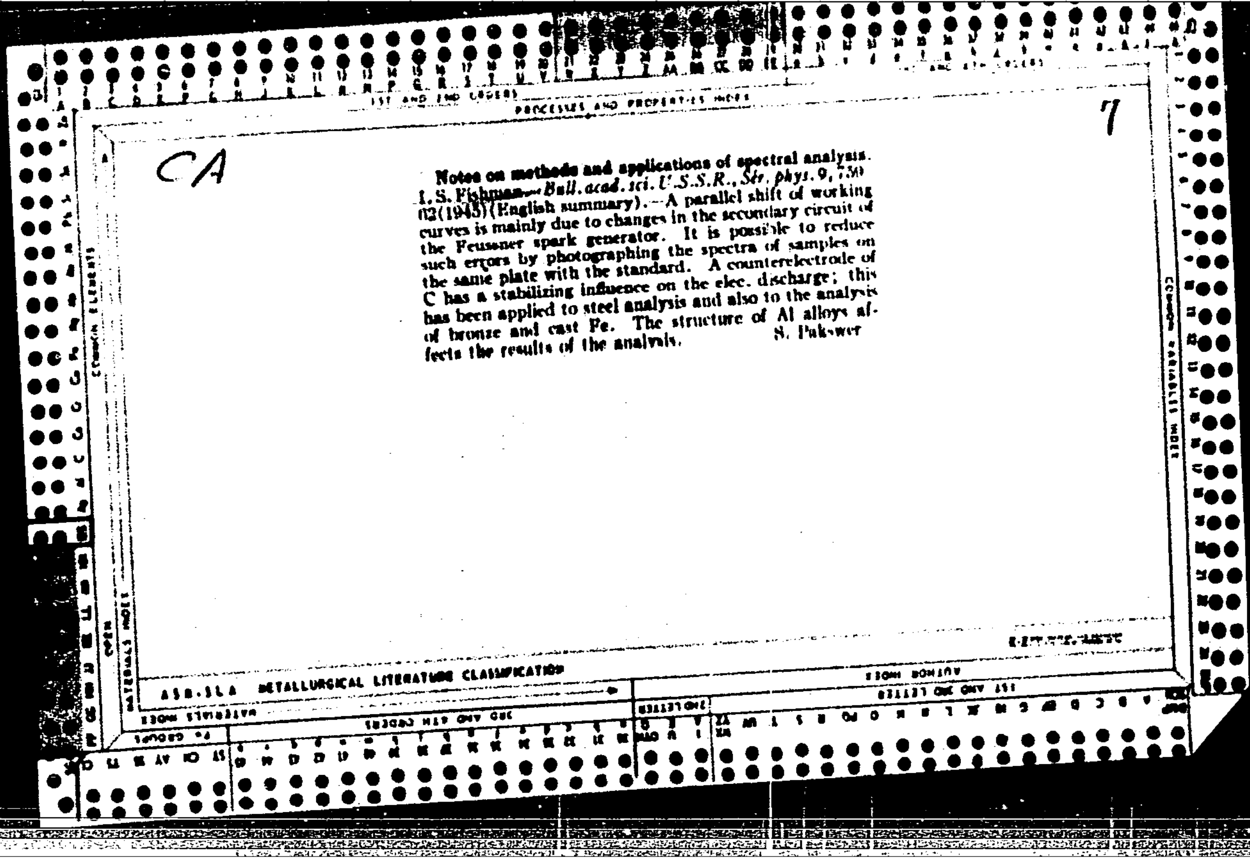
1ST AND 2ND ORDERS
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

***Quantitative Spectrographic Analysis with the Aid of a Transformation Factor.** I. S. Fishman. (*Izvest. Akad. Nauk S.S.S.R.*, 1941, [Fiz.], 5, (2.3), 284–288). [In Russian.] A method of analysis is suggested which obviates the need for photographing a standard on each plate. In order to compare the densities of the lines from the specimen under examination with those of a standard sample on another plate, F. uses the formula $\Delta S'_{12} = K \cdot \Delta S_{12}$; ΔS_{12} and $\Delta S'_{12}$ are the corresponding intensity differences between two lines on the same plate and $K = \gamma'/\gamma$, where γ' and γ are the corresponding contrast factors of the two plates. Results are given to show the success of the method in determining Sn in bronze and Ni in Corson bronze. N. B. V.



1ST AND 2ND ORDERS
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Notes on methods and applications of spectral analysis. I. S. Fishman. *Bull. acad. sci. U.S.S.R., Sér. phys.* 9, 230-2(1945)(English summary).—A parallel shift of working curves is mainly due to changes in the secondary circuit of the Feussner spark generator. It is possible to reduce such errors by photographing the spectra of samples on the same plate with the standard. A counterelectrode of C has a stabilizing influence on the elec. discharge; this has been applied to steel analysis and also to the analysis of bronze and cast Fe. The structure of Al alloys affects the results of the analysis.

S. Pakswer

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CA

7

Quantitative spectral analysis of steel in the ultraviolet
region of the spectrum. I. B. Fishman and S. Ya. Gashil
Zavodskaya Lab. 11, 101-7(1945). Nomographs are
constructed from the contrast factor of the photographic
plate and the "transformation factor" (*C.A.* 37, 2304²).
The lines used for the detns. were: W 2397.1 and Fe
2396.72 A. (for large concns. of W the line Fe 2400.34 A.
was used); Cr 2677.1 and Fe 2680 A. for small concns. of
Cr, Cr 2860.9 and Fe 2823 A. for medium concns. (3
5%), medium high concns. (8-10%), and high concns.
(up to 15-20%); the doublets Ni 3101.88 and Ni 3101.56
A. and triplets Fe 3100.67, Fe 3100.31, and Fe 3099.90 A.
for Ni, Si 2516.1 and Fe 2518.1 A. for Si; Mn 2939.3 and
Fe 2936.6 A. for Mn; Mo 3170.3 and Fe 3205.4 A. for up
to 8% of Mo in steel contg. no V; Mo 2816.1 and Fe
2724.8 A. for up to 1.2% of Mo in steel contg. V and no
Al; Mo 2684.13 and Fe 2823.2 A. for 2-5% of Mo; V
3110.71 and Fe 3083.0 A. for up to 1% of V; V 2882.5
and Fe 2823.2 A. for 1.0-3% of V; Al 3082.162 and Fe
3083 A. for Al. Six references. W. R. Henn

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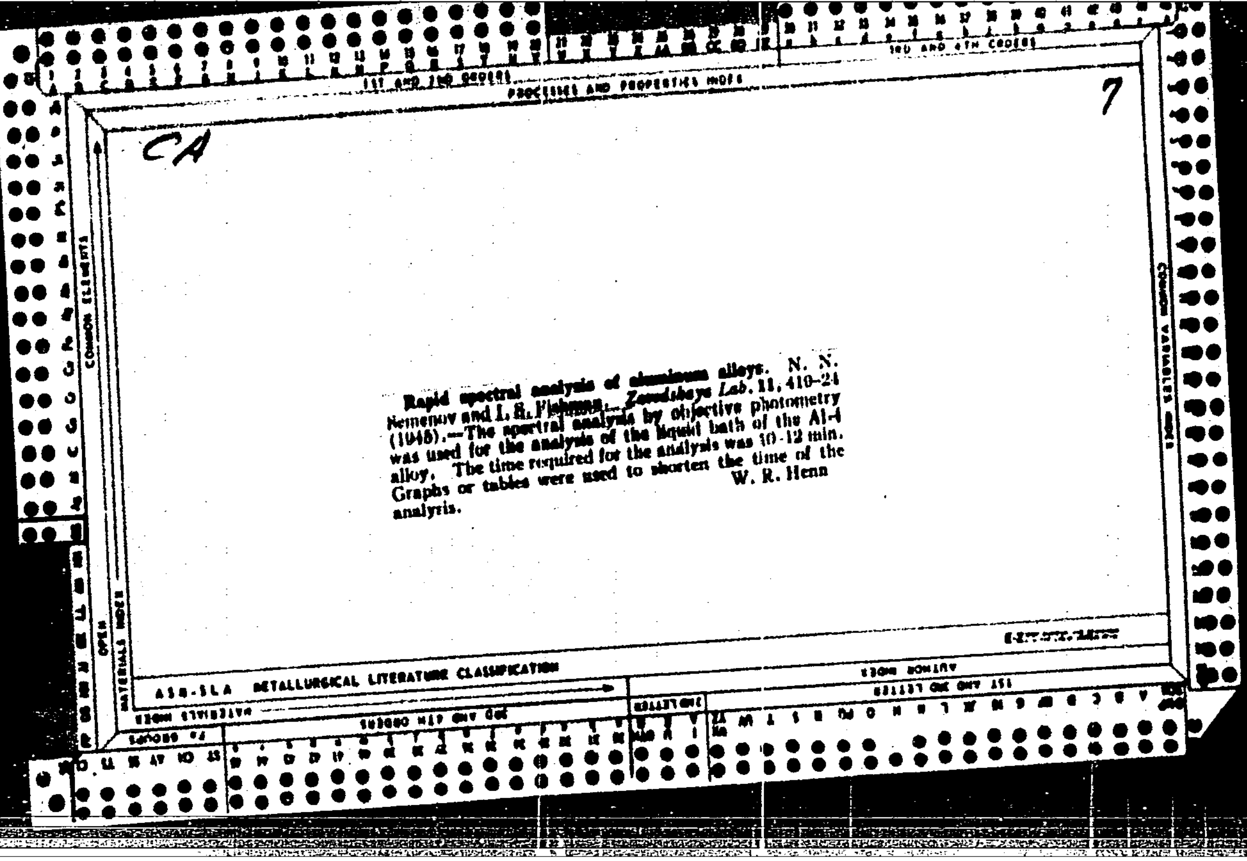
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3RD LETTER
FE GROUPS

CA

7

Rapid spectral analysis of aluminum alloys. N. N. Nemenov and I. S. Fishman. *Zavodskaya Lab.* 11, 410-24 (1945).—The spectral analysis by objective photometry was used for the analysis of the liquid bath of the Al-4 alloy. The time required for the analysis was 10-12 min. Graphs or tables were used to shorten the time of the analysis.

W. R. Henn

FA 172153

FISHMAN I. S.,

USSR/Metals - Spectrography, Calibration Sep/Oct 50

"Shift of Calibration Graphs in Spectral Analysis," I. S. Fishman

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV, No 5, pp 586-589

Examn of shifts of calibration curves with change in compd and properties of samples and depending on excitation of spectrum proved parallel shift in case of wide rectilinear part of curve for large interval of concn; curves of samples of one type may be used as comparative base for another type and rules of shift may produce control method of samples.

172T53

STOLOV, A. L., AND FISHMAN, I. S.

Computations of Errors in Nonuniform Measurements

Formulas for computation of mean square and mean arithmetic errors without computing the mean value, but using only the difference between two consecutive measurements, are derived. The same method may be applied in "nonuniform measurements," i.e., measuring with different accuracy. (RZhFiz, No. 8, 1955) Uch. Zap. Kazansk. un-ta, 113, No. 9, 1953, 145-153.

SO: Sum. No. 744, 8 Dec 55 - Supplementary Survey of Soviet Scientific Abstracts (17)

USSR/Chemistry - Spectral analysis

Card 1/1 Pub. 43 - 42/97

Authors : Fishman, I. S.

Title : Application of standard graphs during spectral analysis

Periodical : Izv. AN SSR. Ser. fiz. 18/2, 269-270, Mar-Apr 1954

Abstract : The importance of formulating standard graphs unique for all spectral laboratories is emphasized. The method of formulating such standard graphs is explained. In order to indicate the intensity of analytical lines applicable for the construction of the graph the spectrum of the "standard arc" (AC-arc), must have a selected copper line the blackening of which equals the blackening of the analytical line at an average concentration of the given element. The conditions at which the blackenings of the analytical and copper lines appear to be equal are indicated on the graph. These conditions are: concentration of the element analyzed, slope of the calibrating graph and time of exposure of the spectra.

Institution : .....

Submitted : .....

USSR/Chemistry - Spectral analysis

Card 1/1 Pub. 43 - 45/97

Authors : Nekrasov, B. Ya.; Misharin, G. I.; Saranchuk, E. I.; Sukhenko, K. A.; Fishman, I. S.; and Yakovleva, N. P.

Title : Method of express spectral analysis, its advantages and results of introducing into industry

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 271, Mar-Apr 1954

Abstract : The results obtained by industry in applying the I. S. Fishman method of controlled standards to the analysis of Al-alloys, high-alloyed steel, cast iron and Ni are mentioned briefly. The application of the objective express spectral analysis method in industry is highly recommended by the authors of this report. One USSR reference (1950).

Institution : The All-Union Institute of Aviation Materials

Submitted : .....

FISHMAN, I.S.

The real value of the 6 reabsorption coefficient in the excitation of spectra by condensed-spark generators. Izv. AN SSSR. Ser. fiz. 19 no.1:135-136 Ja-F '55. (MLRA 8:9)

(Spectrum analysis) (Spectrometer)

FISHMAN, I.S.

USSR/Optics - Optical Methods of Analysis. Instruments, K-7

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35879

Author: Fishman, I. S.

Institution: None

Title: Spectral Analysis Using Standard Calibration Charts

Original Periodical: Uch. zap. Kazansk. gos. un-ta, 1955, 115, No 12, 41-56

Abstract: Consideration of the possibility of using single standard charts for many laboratories when working with a spark excitation source. The charts are plotted in log C vs $\frac{\Delta S}{\gamma}$ coordinates; the background is calculated by a method previously proposed (Referat Zhur - Fizika, 1954, 13969). Each laboratory employs a control standard and one constant parameter of the standard chart -- the angle of inclination. The magnitude of the angle of inclination can be varied by changing the conditions of evaporation and the conditions of reabsorption. Problems of standardization of the conditions of

Card 1/2

USSR/Optics - Optical Methods of Analysis. Instruments, K-7

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35879

Abstract: evaporation and of the conditions of reabsorption are examined. To take into account the reabsorption factor, different lines of the copper spectrum of an auxiliary "standard arc" with a definitely selected mode of operation is used: the electrodes are copper rods 7 mm in diameter sharpened into a truncated cone with a tip having a diameter 1.5 mm, the distance between electrodes is 2 mm, and the current is 6 amp. The absolute intensity of the lines in the "standard arc" depends little on the generators used. Using as an example the analysis of alloys with nickel and cobalt base it is shown that when certain conditions are satisfied the slope of the plot remains constant for various generators and for various spectrographs.

Card 2/2

Fishman, I. S.

USSR/Optics - Optical Methods of Analysis. Instruments. K-7

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 7942

Author : Fishman, I.S., Stolov, A.L.
Title : Calculation of Errors in Spectral Analysis by Current Measurements. II.

Orig Pub : Uch. zap. Karansk. gos. un-ta, 1955, 115, No 12, 57-71

Abstract : Continuation of work published in the Uch. Zap. (Scientific notes) of the Kazan' University, 1953, 113, Book 9, 145. Using the least squares method, expressions are obtained for the errors in the analysis when plotting graphs using the method of three standards and the method of control standard. The analysis of these expressions made it possible to predict the following concerning the three-standard method: (1) given a number of standards and given a concentration, the minimum error is obtained when the standards are placed at the ends of the interval, symmetrically relative to the middle; (2) for a given set

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USSR/Optics - Optical Methods of Analysis. Instruments. K-7

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 7942

of standards the error depends on the concentration of a given component and increases considerably for concentrations lying at the boundaries of the interval; (3) it is always more advantageous to photograph spectra of a small number of standards, but increase the multiplicity of the photography; (4) the accuracy of the analysis is best increased by increasing the multiplicity of the photography of the spectra of the specimen, not of the standards. It is shown by calculation that the accuracy of the analysis made by the control-standard method exceeds the accuracy given by the three-standard method, for the same total number of photographs. This statement is illustrated by an example of work performed in the plant laboratory.

Card 2/2

FISHMAN, I.S.

USSR/Laboratory Equipment. Instruments, Their Theory, Construction and Application. H.

Abs Jour	:	Referat Zhur - Khimiya, No 6, 1957, 19757
Author	:	I.S. Fishman, V.M. Zimin, T.G. Kaporskaya.
Inst	:	Kazan University.
Title	:	Experimental Checking of Computation Formulae of Method of Standard Graphs.
Orig Pub	:	Uch. zap. Kazanskogo un-ta, 1956, 116, No 1, 132-135

Abstract : The results of checking the applicability of the formula for the computation of the slant of a gaga graph for spectral analysis are quoted. This formula is the following (in coordinates Ig c and Δ S): $\mathrm{tg}\,\alpha_t = \gamma \cdot b \cdot k \cdot \beta$, where γ is the contrast factor of the photographic plate, k and β are factors discounting the influence on the inclination of the background in the spectrum and the influence of the dilution of the base, b is the reabsorption factor (RZhKhim, 1956, 36125). It was shown with

pplication. H.

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 19757

a great number of experimental data referring to the spectral analyses of standards that in case of work with a condenser spark generator b is practically equal to 1 for analytical lines, the bottom level of which is not normal. The absolute error of values of b calculated for solid alloys and solutions introduced with a fulgurator is = 0.03 in this case. The difference in slant of graphs plotted by the usual method using solid standards and computed theoretically is explained with the imperfection of the standards differing in their physical - chemical properties.

Fishman, I. S.

24(7) **PHASE I BOOK EXPLOITATION** SOV/1700

Lvov. Universitet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii, 1956. t. II: Atomnaya spektroskopiya (Materials of the 10th All-Union Conference on Spectroscopy, 1956. Vol 2: Atomic Spectroscopy) /Lvov/ Izd-vo L'vovskogo univ., 1958. 568 p. (Series: Its: Fizicheskiy sbornik, vyp. 4(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii.

Editorial Board: G.S. Landsberg, Academician, (Resp. Ed.); B.S. Neporent, Doctor of Physical and Mathematical Sciences; I.L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; V.A. Fabrikant, Doctor of Physical and Mathematical Sciences; V.G. Koritskiy, Candidate of Technical Sciences; S.M. Rayskiy, Candidate of Physical and Technical Sciences; L.K. Klimovskaya, Candidate of Physical and Mathematical Sciences; V.S. Miliyanchuk (Deceased), Doctor of Physical and Mathematical Sciences; A.Ye. Glauberman, Doctor of Physical and Mathematical Sciences; Ed.: S.L. Gaser; Tech. Ed.: T.V. Saranyuk.

PURPOSE: This book is intended for scientists and researchers in the field of spectroscopy, as well as for technical personnel using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies of atomic spectrography presented at the 10th All-Union Conference on Spectroscopy in 1956. The studies were carried out by members of scientific and technical institutes and include extensive bibliographies of Soviet and other sources. The studies cover many phases of spectroscopy: spectra of rare earths, electromagnetic radiation, physicochemical methods for controlling uranium production, physics and technology of gas discharge, optics and spectroscopy, abnormal dispersion in metal vapors, spectroscopy and the combustion theory, spectrum analysis of ores and minerals, photographic methods for quantitative spectrum analysis of metals and alloys, spectral determination of the hydrogen content of metals by means of isotopes, tables, and atlases of spectral lines, spark spectrographic analysis, statistical study of variation in the parameters of calibration curves, determination of traces of metals, spectrum analysis in metallurgy, thermochemistry in metallurgy, and principles and practice of spectrochemical analysis.

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Materials of the 10th All-Union Conference (Cont.) SOV/1700

Kustanovich, I.M. Spectrum Analysis of Different Types of Products by One Calibration Curve 533

Dem'yanchuk, A.S., and Ye.S Kudelya. Special Aspects of the Spectral Determination of Carbon, Phosphorus, and Sulfur in Metal Alloys 535

Shipitsyn, S.A. Effect of Development on the Measurement of Spectral Line Intensities 539

Spektrov, L.A., and V.S. Engel'sht. New Technique in the Use of Additives 543

Nalimov, V.V. Use of Mathematical Statistics in Analytical Work 546

Zhavoronkina, T.K., and O.B. Fal'kova. Use of the Spectral Method for the Determination of Chlorine in Climatological Studies 549

Fishman, I.S. Spectrum Analysis With the Aid of Reference Curves 551

Card 30/31

AUTHOR: Fishman, I.S.

[redacted]

32-24-4-28/67

TITLE: Spectral Analysis According to Calibration-Calculation-Diagrams (Spektral'nyy analiz po raschetnym graduirovochnym grafikam)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 447-453 (USSR)

ABSTRACT: In contrast to hitherto employed standard rules for the elaboration of diagrams, only one standard sample is used in the case of the method described. It is stated that there is a linear function between the concentration of the element in the discharge cloud and the solid electrodes, and besides the range of concentration for the type of material given is strictly limited. These conditions do not alway apply, so that the method cannot be considered to be universal. It follows from data published that the linear function is realized in condensation sparks and, in the case of burning of sufficiently long duration, apparently always, so that it may be assumed that this is also the case in the excitation spectra of metals and alloys in the electric arc. This assumption must, however, be verified in each individual case. Investigations were carried out with a number of alloys with respect to the influence exercised by the fond of the spectrum, dilution, vaporization, re-absorption

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and the properties of the photographic film upon the inclination of the diagrams. A mathematical derivation of the angular coefficient of the calibration curves is given. In connection with the data supplied by N.K.Rudnevskiy (Ref 8) and V.K.Prokof'yev (Ref 9) it was found that, under certain conditions the inclination of the calibration curves is independent of the vaporization factor. Investigations with respect to the reabsorption coefficient were carried out in cooperation with T.Kapordnya and V.M.Zimin. In accordance with the results obtained by investigations of the influence exercised by the contrast factor it is recommended, among other things, not to select just any spectral lines, but, according to intensity, relatively uniform lines extending along the electric source, and to photograph the spectrum with lenses without intermediate representation. From the experimental results given the conclusion is drawn that for the objects investigated the expression "method of parallel diagrams" is not applicable in the works referred to. The results mentioned by Yu.M.Buravlev (Ref 14) can be explained by the influence of third elements as well as by structural differences in the standard samples. The "fluctuation of inclination" according to V.V.Nalimov and K.I.Ionova (Ref 15) is due to a local modification of the contrast factor and can be eliminated or cosiderably reduced. There are 5 figures, 4 tables, and 15 references, which are Soviet.

1. Spectroscopy--Standards 2. Spectrum analyzers--Performance

S/051/62/013/005/002/017
E202/E192

AUTHOR: Fishman, I.S.

TITLE: The relation between the self absorption of the spectral lines with their full intensity and the b values for a series of lines emitted by a spark discharge torch

PERIODICAL: Optika i spektroskopiya, v.13, no.5, 1962, 630-634

TEXT: The author develops the formula relating the log I and b, viz. the quantities characterising the self-absorption of the lines for a dispersive line profile with various degrees of non-homogeneities in the spark discharge plasma, including small values of n. In addition a simple method of finding b, with the help of tables, is also given. The general method of determining the discharge parameters and the properties of spectral lines is based on comparing the theoretical and experimental relations between b and log I. This relation is reduced by the author to a system:

$$b = 1 + \frac{p}{\varphi(p)} \cdot \frac{d\varphi(p)}{dp},$$

Card 1/2

The relation between the self ...

S/051/62/013/005/002/017
E202/E192

$$\log I = \log \left[p\varphi(p) \right] .$$

where $$\varphi(p) = \frac{I}{I_0} = \frac{\text{total intensity of line allowing for absorption}}{\text{total intensity of line}} .$$

The above system was solved expressing $\varphi(p)$ as a series and applying the combination formulae. Having these data, a non-equilibrium curve was plotted for $n=2$ for the non-equilibrium plasma, and a number of curves for various degrees of non-homogeneity, assuming the existence of local thermodynamical equilibria in the plasma. A number of experimental methods of measuring the relation between log I and b are described and a table of the author's earlier evaluations of b and log I for a number of spark and arc lines of nickel is also included. There are 1 figure and 1 table.

SUBMITTED: September 22, 1961

Card 2/2

FISHMAN I. S. 105

~~[illegible]~~, Yu. A.

PHASE I BOOK EXPLOITATION SOV/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

Eds. (Title page): G. P. Skornyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skornyakov; Ed. of Publishing House: M. L. Kryzhova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to G. V. Chentsova for help in preparing the materials for the press. References follow the individual articles.

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Buravlev, Yu. M., V. I. Ustinova, and G. P. Neuymina. Effect of carburization and nitriding on the results of spectral analysis of construction steels 47

Grinzayd, Ye. L., and F. D. Korobko. Effect of total composition of alloy steels on results of silicon determination 52

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FISHMAN, I.S.

110

PHASE I BOOK EXPLOITATION SOV/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

Eds. (Title page): G. P. Skornyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skornyakov; Ed. of Publishing House: M. L. Kryzhova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

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110

Materials of the Third Ural Conference (Cont.) SOV/6181

COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to G. V. Chentsova for help in preparing the materials for the press. References follow the individual articles.

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FISHMAN, I.S.

Relation of the self-absorption of spectral lines to their total intensity and b-values for lines induced in the spark of an electric discharge. Opt.i spektr. 13 no.5:630-634 N '62.
(MIRA 15:12)
(Electric discharges) (Spectrum analysis)

FISHMAN, I.S.; IL'IN, G.G.

Applicability of the linear absorption method to nonuniform light sources. Opt. i spektr. 15 no.3:400-404 S '63.
(MIRA 16:10)

FISHMAN, I.S.; SHAYMANOV, I.Sh.; IL'IN, G.G.

Some experimental relationships of the integral characteristics of radiation in an arc. Opt. i spektr. 15 no.5:595-600 N '63. (MIRA 16:12)

S/048/62/026/007/023/030
B125/B104

AUTHOR: Fishman, I. S.

TITLE: Relationship between self-absorption of spectral lines in a spark and its integral intensity

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 7, 1962, 936-938

TEXT: The dependence of tangent b of the angle of inclination of the curve of increase on the integral intensity I, calculated with the aid of the parameter relations $b = 1 + (p/\varphi(p)(d\varphi(p)/dp)$ and $\log I = \log[p\varphi(p)]$ with the values of $\varphi(p)$ given by R. D. Cowan et al. (Rev. Mod. Phys., 20, 418 (1948)) is shown in Fig. 1. $\varphi(p) = I/I_0$, where p is a parameter, and I_0 the intensity of the spectral line without self-absorption. The function $b = b(I)$ was determined experimentally by the method of I. V. Podmoshenskiy (Optika i spektroskopiya, 6, 813 (1959)) for several alloys with variable concentration of the elements. The line intensity was determined photometrically. The general course of the function

Card 1/3

Relationship between self-absorption ... S/048/62/026/007/023/030
B125/B104

b = b(log I) of the arc line Al I 3082.1 and the spark line Cr II 2677.1 Å, which is almost linear if $1 > b > 0.5$, is in agreement with the corresponding theoretical curves. The agreement is best if n = 1, which corresponds to a homogeneous light source. The slope of the curve increases as the degree of inhomogeneity increases. The degree of inhomogeneity of the source cannot be clearly determined unless data are available for the two edges of the spectral line. The function b = (log I) is only slightly influenced by a change in the parameters of the spark generator. From these results the formula $\log I = (1/r) + \log I(0) - (1/r)(C/C_o)^{-0.43\,r} = A - BC^{-0.15}$ is obtained for the dependence of the intensity on the concentration in the gaseous phase of the source, taking account of self-absorption. r denotes the tangent of the angle of inclination of the straight line representing the function b = b(log I). Self-absorption sets in at the limiting intensity I(0). The concentration C_o corresponds to the intensity I(0). A and B are constants. Besides, $b = (C/C_o)^{-0.43\,r} = (C/c_o)^{-0.15} = (c/c_o)^{-0.15}$, where c_o and c_1 are the concentrations at the electrodes. There are 2 figures.

Card 2/3

Relationship between self-absorption ... S/048/62/026/007/023/030
B125/B104

ASSOCIATION: Kafedra optiki i spektroskopii Kazanskogo gos. universiteta im. V. I. Ul'yanova-Lenina (Department of Optics and Spectroscopy of the Kazan' State University imeni V. I. Ul'yanov-Lenin)

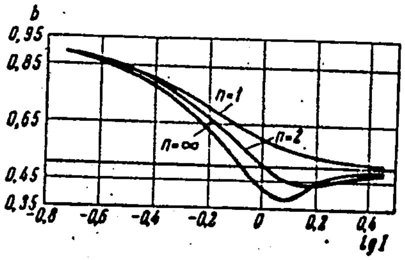

Fig. 1: Function b = F(log I), calculated for different degrees of inhomogeneity on the basis of the self-absorption theory of Cowan and Dieoe.

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L 46303-65 EWT(1)/EPA(s)-2/EPA(w)-2/EEC(t)/EWA(m)-2 Pab-10

ACCESSION NR: AR5012222 UR/ 0058/65/000/003/G024/G024

SOURCE: Ref. zh. Fizika, Abs. 3G171

26
B

AUTHOR: Fishman, I. S.; Shaymanov, I. Sh.; Il'in, O.G.

TITLE: Experimental investigation of the dependence of b_i on log I for arc and spark discharges

CITED SOURCE: Sb. Itog. nauchn. konferentsiya Kazansk. un-ta za 1962 g. Kazan', Kazansk. un-t, 1963, 54-57

21

TOPIC TAGS: arc discharge, spark discharge, reabsorption coefficient, absorption intensity, arc analysis, spark analysis, flame analysis

TRANSLATION: The calculations of integral characteristics of a plasma are verified experimentally. For comparison it is convenient to use the dependence of the reabsorption coefficient b_i, determined by the linear absorption method, on log I, where I is the total intensity, determined by the method of photographic photometry. The source of light was a dc arc, an ac arc, and a condensed spark. An ISP-51 spectrograph with camera of f = 270 mm was used for the measurements.

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L 46303-65

ACCESSION NR: AR5012222

0

The investigated elements were introduced into the discharge gap in the form of solutions of corresponding compounds. It turned out that under normal spectral-excitation conditions the samples do not reach the self absorption phase, even at maximum concentration of the element. Thus, the connection between b_1 and log I for the majority of the lines is described uniquely by means of a single curve. The measurements were made for Cr, Na, and Fe. V. Sinitsyn.

SUB CODE: OP ENCL: 00

Card 2/2

L 04714-65 EWT(1)/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT

ACCESSION NR: AR5012266 UR/0058/65/000/003/D038/D038

SOURCE: Ref. zh. Fizika, Abs. 3D285 28

B

AUTHOR: Fishman, I. S.; 44,55 Il'in, G. G. 44,55

TITLE: Calculation of integral quantities in an arc discharge plasma 21,44,55 on the basis of the Cowen-Dicke model for the generalized Voigt profile

CITED SOURCE: Sb. Itog. nauchn. konferentsiya Kazansk. un-ta za 1962 g. Kazan', Kazansk. un-t, 1963, 47-50

TOPIC TAGS: integral relation, plasma physics, arc discharge, discharge plasma

TRANSLATION: The Cowen-Dicke model may be considered true in the first approximation for an arc operating at atmospheric pressure. These quantities are calculated for a more general formula of the profile line for an infinitely thin layer, for the Voigt profile. The results of the calculations are graphed. A number of the important characteristics of a luminous plasma may be determined from these graphs. V. Uranovskiy.

SUB CODE: ME, MA ENCL: 00

282

Card 1/1

L 33163-66 EWT(1)

ACC NR: AR6016184 SOURCE CODE: UR/0058/65/000/011/D017/D017

35
B

AUTHOR: Il'in, G. G.; Fishman, I. S.

TITLE: Concerning the influence of asymmetry of the contour on the integral characteristics of the radiation

SOURCE: Ref. zh. Fizika, Abs. 11D120

REF SOURCE: Sb. Itog.nauchn. konferentsiya Kazansk. un-ta za 1963 g. Sekts.: paramagnitn. rezonansa, spektroskopii i fiz. polimerov, radiofiz., astron., bion. Kazan', 1964, 38-39

TOPIC TAGS: spectral line, light dispersion, radiation intensity

ABSTRACT: The authors consider qualitatively the influence of asymmetry of the initial contour of the spectral line on the observed contour and on the integral characteristics of the radiation. In the calculations, the initial contour is taken to be one made up of two halves of dispersion contours, which differ from each other in half width. It is established that in the case of an asymmetrical contour a certain deformation of the observed contour takes place, but its integral quantities do not change. Yu. Kutev. [Translation of abstract]

SUB CODE: 20

LS

Cord 1/1

L 43777-66 EWT(1) IJP(c) AT

ACC NR: AR6017242 SOURCE CODE: UR/0058/65/000/012/D039/D039

50

AUTHOR: Fishman, I. S.

B

ORG: none

TITLE: Certain ways for improving the linear-absorption method

SOURCE: Ref. zh. Fizika, Abs. 12D322

REF SOURCE: Sb. Itog. nauchn. konferentsiya Kazansk. un-ta za 1963 g. Sekts.: paramagnitn. rezonansa, spektroskopii i fiz. polimerov, radiofiz., astron., bion. Kazan', 1964, 22-24

TOPIC TAGS: plasma measurement, absorption coefficient, absorption line, linear absorption

ABSTRACT: Optical diagrams have been presented of apparatus with one or two spherical mirrors for measuring the plasma transparency and the reabsorption coefficient by the method of linear absorption. Energy correlations have been

Card 1/2

L 43777-66

0

ACC NR: AR6017242

investigated. It has been shown that the diagram with two spherical mirrors permits minimal error (2--3 times lower compared with one mirror) in determining the reabsorption coefficient. [Translation of abstract] [NT]

SUB CODE: 20/ SUBM DATE: none/

LS

Card 2/2

L 46035-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AR6013641

SOURCE CODE: UR/0058/65/000/010/D058/D058

AUTHOR: Ramazanov, A. Sh.; Fishman, I. S.

36
B

REF SOURCE: Sb. Itog. nauchn. konferentsiya Kazansk. un-ta za 1963 g. Sekts.: paramagnitn. rezonansa, spektroskopii i fiz. polimerov, radiofiz., astron., bion. Kazan, 1964, 56-61

TITLE: Spectral method of determining thickness of gold and palladium coatings

SOURCE: Ref. zh. Fizika, Abs. 10D421

TOPIC TAGS: spectral line, metal coating, GOLD, PALLADIUM

TRANSLATION: The thickness of gold and palladium coatings, in the range of 2-5 μ, deposited on small bronze and brass parts coated with 15 μ of silver was determined. The method is based on determining (with the help of a standard) the differences in the degree of blackening between the Au or Pd and the Ag substrate lines. A localized spark generator is used for the spectrum excitation. The average deposition thickness is obtained from the localized thickness measurements by means of empirical coefficients, experimentally obtained for differently shaped parts.

SUB CODE: 14/ SUBM DATE: none

Card 1/1

L 26699-66 EWT(l)/ETC(f)/EPF(n)-2/EWG(m) IJP(c) AT

ACC NR: AP6011551 SOURCE CODE: UR/0051/66/020/003/0387/0393

AUTHORS: Il'in, G. G.; Fishman, I. S.

54
52
B

ORG: none

TITLE: Concerning the problem of plasma diagnostics by means of self-inverted contours of spectral lines emitted by inhomogeneous layers

SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 387-393

TOPIC TAGS: plasma diagnostics, spectral line, plasma temperature, plasma density, line broadening, line intensity, line width

ABSTRACT: This is a companion to earlier work (Zh. Prikl. Spektr. v. 3, 320, 1965) dealing with various errors that arise in the calculation of the temperature, atom and ion density, inhomogeneity, electron density, and the broadening of spectral lines when the self-inverted contour method is used for plasma diagnostics. The present article presents improvements to the calculations obtained by representing the line contours in the form of a Voigt contour. The in-

Card 1/2 UDC: 533.9

L 26699-66

ACC NR: AP6011551 2

homogeneous light source model proposed by R. D. Cowan and D. H. Dieke (Rev. Modern Phys. v. 20, 418, 1948) was used. The formula used for the intensity distribution of the line contour was reported by the authors elsewhere (Itogovaya nauchn. konf. Kazanskogo univ. za 1962 [Summarizing Scientific Conference of the Kazan' University in 1962], p. 47, Kazan', 1963). The tabulated values obtained for the width of the line contour and for the intensity ratio, and plots of the line contour and of the intensity ratio against the line widths are presented. The results of the calculations were verified experimentally and agree well with experimental data, with a few exceptions in the case of the lines of sodium plasma. New plasma diagnostic schemes based on this method are proposed. It is proposed that the results of the calculations be used to supplement and refine existing plasma diagnostic procedures. The authors thank N. K. Begovatova and R. V. Surinova for help with the calculations. Orig. art. has: 5 figures, 2 formulas, and 3 tables.

SUB CODE: 20/ SUBM DATE: 21Jan65/ ORIG REF: 023/ OTH REF: 004

Card 2/2 BLQ

FISHMAN, K.F.; GEL'MAN, I.V.

One attribute of finiteness for the defficiency index of the Hermitian operator. Usp.mat.nauk 11 no.3:185-187 My-Je '56. (MLRA 9:9)
(Operators (Mathematics)) (Spaces, Generalized)

FISHMAN, K.M.

Fišman, K. M. On the integral representation of certain classes of entire functions. Uspehi Mat. Nauk 10, no. 2(64), 187–194 (1955). (Russian) 1-F/W

The author considers a continuous positive decreasing function $\sigma(\rho)$ such that $a_n = \int_0^\infty \sigma(\rho)\rho^n d\rho <$ [illegible] He defines L_σ^2 as the Hilbert space of [illegible]

[illegible]

result is that Z_σ^2 also is the class of $f(z)$ with the representation

$$f(z) = \int_0^\infty \int_0^{2\pi} \phi(w) E(\bar{w}z) \sigma(\rho)\, d\rho\, d\theta \quad (w = \rho e^{i\theta}).$$

Fisman, K. M.

where

$$\int_0^{2\pi}\int_0^{1}|\phi(w)|^2\sigma(\rho)d\rho d\theta < \infty$$

and $2\pi E(z) = \sum_{n=0}^{\infty} z^n/\sigma^{2n}$. There are [illegible]

FISHMAN, K. M.

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress (Cont.) Moscow, Jun-Jul '56, Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.
There are 6 references, all of them USSR.

Ul'yanov, P. L. (Moscow). About A-integrals of Cauchy. 107-108

Fedorov, V. S. (Ivanovo). On Monogenic Functions. 108-109

Fishman, K. M. (Chernovitsy). On a Class of Hilbert Spaces of Analytic Function. 109

Fuksman, N. A. (Tashkent). About Analytic Functions of Integral Complex Argument. 109-110

Mention is made of Romanov, N. P.

Khavinson, S. Ya. (Moscow). P. L. Chebyshev's Systems and the Uniqueness of the Best Polynomial Approximation in the Metrics of L_1 Space. 110

Card 34/80

FISHMAN, K.M.

Fišman, K. M. and Gel'man, I. Y. On a criterion in the [illegible]

[illegible] Hernat [illegible]

SUBJECT	USSR/MATHEMATICS/Theory of functions	CARD 1/3	PG - 316
AUTHOR	FIŠMAN K.M.		
TITLE	On a class of Hilbert spaces of analytic functions.		
PERIODICAL	Doklady Akad. Nauk 107, 24-27 (1956) reviewed 10/1956		

Let $E(z) = \sum_{0}^{\infty} \frac{z^n}{\alpha_n}$ $(0 < \alpha_n < \infty,\ \underline{\lim} \sqrt[n]{\alpha_n} = 1)$ be a function being analytic in the unit circle C_1. Let Z_E^2 be the totality of the functions $f(z) = \sum_{n=0}^{\infty} a_n z^n$ for which $\sum_{n=0}^{\infty} |a_n|^2 \alpha_n < \infty$. Defining the scalar product of two elements $f(z)$ and $g(z)$ of Z_E^2 by

$$(f(z),g(z)) = \sum_{n=0}^{\infty} a_n \bar{b}_n \ {}_n, \quad f(z) = \sum_{n=0}^{\infty} a_n z^n \text{ and } g(z) = \sum_{n=0}^{\infty} b_n z^n,$$

then Z_E^2 becomes a complete separable Hilbert space with an orthonormalized basis $\left\{ \frac{z^n}{\sqrt{\alpha_n}} \right\}_0^{\infty}$. The convergence in Z_E^2 implies a uniform convergence in every closed set of C_1. The author constructs some concrete spaces Z_E^2. Let e.g. $\sigma(\varrho)$ $(0 \leq \varrho \leq 1)$ be a function being summable on $[0,1]$, where for every ε there exist k_ε and K_ε such that $0 \leq k_\varepsilon \leq \sigma(\varrho) \leq K_\varepsilon < \infty$ $(\varepsilon \leq \varrho \leq 1-\varepsilon)$. The space $Z^2_{E_\sigma}$ is constructed by aid of the function $E'(z) = \sum_n^\infty \frac{z^n}{\alpha_n}$, where $\alpha_n = \int_0^1 \sigma(\varrho)\,\varrho^{2n} d\varrho$. In order that $f(z) \in Z^2_{E_\sigma}$ it is necessary and sufficient that $\frac{1}{2\pi}\int_0^1\int_0^{2\pi} \sigma(\varrho)\,|f(z)|^2 d\varrho\, d\theta < \infty$ $(z = \varrho e^{i\theta})$. If $f(z)$ and $g(z)$ are two elements of $Z^2_{E_\sigma}$ then

$$(f(z), g(z)) = \frac{1}{2\pi}\int_0^1\int_0^{2\pi} \sigma(\varrho) f(z)\overline{g(z)}\, d\varrho\, d\theta \qquad (z = \varrho e^{i\theta}).$$

$Z^2_{E_\sigma}$ contains the class H_2 of Riesz; putting $\sigma(\varrho) = e^{\frac{1}{\varrho - 1}}$, then $Z^2_{E_\sigma}$ contains all classes $H_2(\alpha)$ of Džrbasjan. For the functions of the class $Z^2_{E_\sigma}$ the following integral representation is valid:

$$f(z) = \frac{1}{2\pi}\int_0^1\int_0^{2\pi} \sigma(\varrho) F(\varrho, \theta) E(\bar{\zeta}_z)\, d\varrho\, d\theta \qquad (\zeta = \varrho e^{i\theta}),$$

Doklady Akad. Nauk 107, 24-27 (1956) CARD 3/3 PG - 316

where $F(\varsigma,\theta)\in L^2_{\varrho}$, $E(z)=\sum_n \frac{z^n}{\alpha_n}$, $\alpha_n=\int_2^1 \sigma(\varrho)\varrho^{2n}d\varrho$. Some questions which are combined with the Abel-Gončarov interpolation problem are treated.

INSTITUTION: University, Černovizy.

FISHMAN, K.M.

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/2 PG - 317
AUTHOR FIŠMAN K.M.
TITLE On the completeness of some systems of analytic functions.
PERIODICAL Doklady Akad. Nauk 107, 205-208 (1956)
reviewed 10/1956

The Hilbert spaces Z_E^2 introduced by the author (Doklady Akad. Nauk 107, 24-27 (1956)) permit to combine the question of the completeness of analytic function sequences $g_k(z) = \sum_n b_n^k a_n z^n$ $(n=0,1,2,\ldots)$ with the well-known properties of the operators with a simple spectrum in the Hilbert space. The following theorems are proved:

1. If $g(z) = \sum_{n=0}^{\infty} a_n z^n$ $(a_n \neq 0)$ is an entire function and if $\{e^{i\theta_n}\}_0^\infty$ is a sequence of pairwise different elements, then the sequence $g_k(z) = \sum_{n=0}^{\infty} a_n e^{ik\theta_n} z^n$ $(\pm k = 0,1,2,\ldots)$ is complete in the family of the entire functions.

2. Let $\{b_n\}$ be a bounded sequence of pairwise different complex numbers. Then the sequence $g_k(z) = \sum_{n=0}^{\infty} a_n b_n^k z^n$ $(k=0,1,2,\ldots)$ is complete in the family of entire functions if either $\mathrm{Jm}\, b_n = 0$ $(n=0,1,2,\ldots)$ or $\{b_n\}_0^\infty$ possesses not more than a finite number of accumulation points, where none of the accumulation

Doklady Akad. Nauk 107, 205-208 (1956) CARD 2/2 PG - 317

points belongs to the sequence.

3. If $\{b_n\}_0^\infty$ is a non-negative sequence of different real numbers, then the sequence $g_k(z) = \sum a_n b_n^k e^{-b_n} z^n$ (k=0,1,2,...) is complete in the family of entire functions.

4. If $\{b_n\}_0^\infty$ is a sequence of different real numbers, then $g_k(z) = \sum_{n=0}^{\infty} a_n b_n^k e^{-b_n^2} z^n$ (k=0,1,2,..) is complete in the family of entire functions.

For $b_n = a_n$ from (2) there follows the result of Iyer V.Ganapathy (J,Ind. Math. Soc. 17, 4, (1953)). All theorems can be extended to functions being analytic in the unit circle.

INSTITUTION: University, Černovizy.

FISMAN, K.M.

SUBJECT	USSR/MATHEMATICS/Theory of functions	CARD 1/4	PG - 318
AUTHOR	FIŠMAN K.M.		
TITLE	On a representation of meromorphic functions in the unit circle.		
PERIODICAL	Doklady Akad. Nauk 107, 366-369 (1956) reviewed 10/1956		

Joining his investigations of the spaces $Z^2_{E_\sigma}$ (Doklady Akad. Nauk 107, 24-27 (1956)) the author gives a generalization of the representation of meromorphic functions which is due to Džrbasjan (Inst. mat.mech. Akad.Nauk SSSR (1948)). Let C_r be the circle $|z| < r$, $\overline{C}_r$ the circle $|z| \leqslant r$, $\zeta = \varrho e^{i\theta}$. Let $\sigma(\varrho)$ be a function being continuous and monotonely decreasing on $[0,1]$ which is positive on $(0,1)$. Let $E(z) = \sum_{n=0}^{\infty} \frac{z^n}{\alpha_n}$, $\alpha_n = \int_0^1 \sigma(\varrho)\varrho^{2n} d\varrho$. $E(z)$ is holomorphic in C_1. Let Z^p_σ $(p > 0)$ be the class of functions being holomorphic in C_1 for which

$$\|f(z)\|_\sigma^{(p)} = \Big(\frac{1}{2\pi}\iint_{C_1} |f(\zeta)|^p \sigma(\varrho) d\varrho\, d\theta\Big)^{1/p} < \infty .$$

Theorem: Every $f(z) \in Z^p_\sigma$ $(p \geqslant 1)$ can be represented as

$$f(z) = \frac{1}{2\pi} \iint_{C_1} f(\zeta) E(z\bar{\zeta}) \sigma(\varrho)\, d\varrho\, d\theta$$

or

$$f(z) = -\overline{f(0)} + \frac{1}{\pi} \iint_{C_1} \operatorname{Re} f(\zeta) E(z\bar{\zeta}) \sigma(\varrho)\, d\varrho\, d\theta \, .$$

Conclusion: Z_σ^p $(p \geqslant 1)$ is a Banach space in which the function value is a linear functional.

Theorem: Let $\{w_n\}_1^\infty$ be a monotone infinite sequence of complex numbers of C_1 being different from zero, where $\lim\limits_{n\to\infty} |w_n| = 1$ and

$$\sum s(|w_n|)(1-|w_n|) < \infty \, , \qquad s(\varrho) = \int_\varrho^1 \sigma(r)\, dr.$$

Then the infinite product $\prod\limits_{n=1}^{\infty} \left(1 - \frac{z}{w_n}\right) e^{-U_\sigma(z;w_n)}$ converges absolutely and uniformly in C_1 $\left(U_\sigma(z;\bar{w}_n) = \frac{1}{\pi} \iint_{C_1} \log\left|1 - \frac{\zeta}{w_n}\right| E(z\bar{\zeta}) \sigma(\varrho)\, d\varrho\, d\theta\right)$

and represents in C_1 a holomorphic function which possesses zeros in the points w_n only.

These results are used to prove the principal result:

Theorem: Let $F(z) = c_\lambda z^\lambda + \ldots.$ be an arbitrary meromorphic function in the unit circle. $\{a_n\}$ and $\{b_n\}$ be the ordered sequences of their zeros and poles. Let $\sigma(r)$ be a function being monotonely decreasing on $[0,1]$, where $\int_0^1 \sigma(r) T_F(r)\,dr < \infty$, $T_F(r)$ is Nevanlinna's characteristic function of F. Then F(z) can be represented in the form

$$F(z) = \frac{k_s}{c_\lambda} z^\lambda \frac{\underset{n}{\prod_s}(z,a_n)}{\underset{n}{\prod_s}(z,b_n)} \exp\left[\frac{1}{\pi}\iint\limits_{C_1} \log|F(\zeta)|\,E(z\bar{\zeta})S(\varsigma)\,d\varsigma\,d\theta\right].$$

Here

$$\prod\nolimits_\sigma^{(r)}(z,z_k) = \prod_{0<|z_k|<r}\left(1-\frac{z}{z_k}\right) e^{-U_\sigma^{(r)}(z;z_k)}, \quad \prod\nolimits_s = \prod\nolimits_s^{(1)},$$

Doklady Akad. Nauk 107, 366-369 (1956) CARD 4/4 PG - 318

$$U_{\sigma}^{(r)}(z,w) = \frac{1}{\pi r} \iint\limits_{C_r} \log \left| 1 - \frac{\zeta}{w} \right| E\left(\frac{z\bar{\zeta}}{r^2} \right) \sigma\left(\frac{\rho}{r} \right) d\rho \, d\theta \, ,$$

$$k_{\sigma} = \exp \left[\frac{2\lambda}{\alpha_0} \int_0^1 \sigma\left(\frac{\rho}{r} \right) \log \frac{1}{\rho} \, d\rho \right] .$$

INSTITUTION: University, Černovisy.

FISHMAN, K. M., Cand of Phys-Math Sci -- (diss) "Certain gilberts of space of analytical functions and their application." Chernovtsy, 1957, 10 pp (Moscow State University im Lomonosov), 150 copies (KL, 30-57, 107)

FISHMAN, K.M

20-3-11/59

AUTHOR: Fishman, K.M.

TITLE: On the Problem of the Representation of Some Classes of Analytical Functions (K voprosu o predstavlenii nekotorykh klassov analiticheskikh funktsiy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 3, pp. 466-469

ABSTRACT: One may have two separable classes of Hilbert (Gilbert) spac with reproducing nuclei which consist of the functions $\{f(z)\}$ $(z \in G)$, $\{\varphi(\xi)\}$ $(\xi \in \mathcal{G})$ respectively. On this occasion G and $\mathcal{G}$ are certain sets. Equations are written down here for the reproducing nuclei $g(z_1, z_2)$ and $h(\xi_1, \xi_2)$ of the corresponding spaces. The nucleus $k(z, \xi) = \sum_{1}^{\infty} p_n(z) \overline{q_n(\xi)}$ $(z \in G, \xi \in \mathcal{G})$ is constructed here. A relevant theorem is given. Then it is assumed that the space $\mathcal{H}$ is embedded in another Hilbert (Gilbert) space $\tilde{\mathcal{H}}$ which must contain a reproducing nucleus. A theorem which can be used for the determination of various integral representations of classes of analytical functions is given for this case, too. These analytical functions produce Hilbert (Gilbert)

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On the Problem of the Representation of Some Classes of Analytical Functions

spaces with a reproducing kernel. Spaces of functions, harmonic within the circle $C_R(|z| < R)$, are then introduced for the representation of various classes of analytical functions by means of real functions (which are subject to different conditions of the quadratic summation). For the purpose of the representation of the analytical functions by real functions an analogue of Schwartz's formula has to be found for the functions used here. The present paper contains altogether 5 theorems. There are 7 references, 4 of which are Slavic.

ASSOCIATION: Chernovtsy State University
(Chernovitskiy gosudarstvennyy universitet)

PRESENTED: February 27, 1957, by V.I. Smirnov, Academician

SUBMITTED: February 25, 1957

AVAILABLE: Library of Congress

Card 2/2

20-6-5/47

AUTHOR: FISHMAN, K.M., VALITSKIY, Yu.N.

TITLE: On the Applicability of the Fredholm Theory to Some Linear Topological Spaces (O primenimosti teorii Fredgol'ma k nekotorym lineynym topologicheskim prostranstvam)

PERIODICAL: Doklady Akademii Nauk SSSR,1957,Vol.117, Nr 6, pp 943-946 (USSR)

ABSTRACT: Let B_r be a real or complex Banach space depending on a parameter r $(\alpha < r \leq \beta)$ and satisfying certain further conditions. In the set $\mathfrak{A}_r = \prod_{r' < r} B_{r'}$, $(\alpha < r \leq \beta)$ let the addition and convergence be defined such that $\mathfrak{A}_r$ becomes a complete linear topological space. Let A be a linear operator which maps B_r into B_r and which is independent of r. In every $\mathfrak{A}_r$, A induces a linear continuous operator not depending on r. The author shows that if the Fredholm theory can be applied to A in every B_r, then also in the spaces $\mathfrak{A}_r$ all Fredholm theorems are valid. 4 Soviet references are quoted.

Card 1/2

On the Applicability of the Fredholm Theory to Some Linear Topological Spaces 20-6-5/47

ASSOCIATION: Chernovtsy State University (Chernovitskiy gosudarstvennyy universitet)
PRESENTED: By V.I.Smirnov, Academician, 21 June 1957
SUBMITTED: 20 June 1957
AVAILABLE: Library of Congress

Card 2/2

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AUTHOR: **Fishman, K.M.** SOV/155-58-6-9/36

TITLE: On Some Hilbert Spaces of Analytic Functions With Reproduction Property

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 6, pp 49-60 (USSR)

ABSTRACT: D is assumed to be the circle $|z|<R$, $\sigma(z) \geqslant 0$ a function summable in D, $\sigma(z) \neq 0$ almost everywhere. Let $L_{\sigma}^{(2)}$ be the Hilbert space of the functions $\varphi(z)$, $z \in D$ for which it is

$$|\varphi(z)|_{\sigma}^{2} = \frac{1}{2\pi}\iint_{D} |\varphi(z)|^{2}\,\sigma(z)\,ds < \infty \quad (z = x + iy,\ ds = dx\,dy)$$

Let $\chi_{\sigma}^{(2)}$ be the subspace of all analytic functions unique in D. Let $P^{(2)}$ be the subspace generated by the sequence $\{z^{n}\}_{0}^{\infty}$.

Theorem 1 : In order that $\chi_{\sigma}^{(2)}$ be the Hilbert space of functions analytic in D with reproducing kernels, it is, in the case where $\sigma(z)$ only depends on $\varrho = |z|$, necessary and sufficient that

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On Some Hilbert Spaces of Analytic Functions With Reproduction Property SOV/155-58-6-9/36

(1) $\int_{R-\varepsilon}^{R} \sigma(\varsigma)d\varsigma > 0$ for all $\varepsilon (0 < \varepsilon < R)$.

Theorem 3 : Let

$$\sigma(z) = \begin{cases} 0 & |z - (1 - \delta)| < \delta \\ 1 & |z - (1 - \delta)| \leq \delta \quad (0 < \delta < 1, \ |z| < 1) . \end{cases}$$

Then $P_{\sigma}^{(2)}$ consists of functions analytic in $|z| < 1$ and possesses a reproducing kernel.

In theorem 4 the author extends the results to bounded simply connected domains D .

M.M. Dzhrbashyan is mentioned in the paper. - There are 4 references, 3 of which are Soviet, and 1 American.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovitsy State University)

SUBMITTED: November 26, 1957 (Uspekhi matematicheskikh nauk)
October 24, 1958 (Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki)

Card 2/2

AUTHOR: Fishman, K.M. SOV/20-122-1-5/44

TITLE: On the Connection of the Method of Close Systems in Special Linear Topological Spaces With Certain Problems of the Theory of Perturbation of Linear Operators in Banach Spaces (O svyasi metoda blizkikh sistem v spetsial'nykh lineynykh topologicheskikh prostranstvakh s nekotorymi voprosami teorii vozmushcheniya lineynykh operatorov v banakhovykh prostranstvakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 1, pp 22-25 (USSR)

ABSTRACT: Some results of the theory of perturbation of linear operators in Banach spaces (see Gokhberg and Kreyn [Ref 1]) are transferred to certain linear topological spaces. Especially, from the abstract point of view, the author considers the methods for the treatment of close systems elaborated by Yevgrafov [Ref 2]; that yields an improvement of some results and gives extended possibilities of application. Altogether five theorems are formulated. There are 2 Soviet references.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovtsy State University)
PRESENTED: April 28, 1958, by V.I.Smirnov, Academician
SUBMITTED: April 26, 1958

Card 1/1

16(1)

AUTHOR: Fishman, K.M. SOV/20-127-1-10/65

TITLE: On Linear Transformations of Analytic Spaces

PERIODICAL: Doklady Akademii nauk SSSR, Vol 127, Nr 1, pp 40-43 (USSR)

ABSTRACT: Let $\left\{ B_r \right\}_{r>0}$ be a family of Banach spaces which satisfy the following conditions: 1.) B_r is a lineal everywhere dense in $B_{r'}$ $(r' < r)$ with respect to $\| \|_{r'}$ 2.) $\| \|_r$ is a non-decreasing function of r . Let $\mathfrak{A}_r$ be the projective limit of $\left\{ \widetilde{B}_{r'} \right\}_{r'<r}$ and $\overline{\mathfrak{A}}_r$ the inductive limit of $\left\{ B_{r''} \right\}_{r''>r}$ (see [Ref 8,9]) . $\widetilde{B}_r$, $\widetilde{\mathfrak{A}}_r$ and $\overline{\widetilde{\mathfrak{A}}}_r$ denote the spaces connected in the way mentioned above.
Fundamental theorem : In order that a linear operator A maps continuously the spaces 1.) $\mathfrak{A}_{r_0}$ in $\widetilde{\mathfrak{A}}_{\varrho_0}$, 2.) $\widetilde{\mathfrak{A}}_{r_0}$ in $\overline{\widetilde{\mathfrak{A}}}_{\varrho_0}$ 3.) $\mathfrak{A}_{r_0}$ in $\widetilde{\mathfrak{A}}_{\varrho_0}$ 4.) $\widetilde{\mathfrak{A}}_{r_0}$ in $\widetilde{\mathfrak{A}}_{\varrho_0}$ it is necessary

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On Linear Transformations of Analytic Spaces SOV/20-127-1-10/65

and sufficient that there exists a function $\varrho(r)$ so that A is a linear bounded operator from B_r into $B_{\varrho(r)}$, whereby in the single cases the following conditions are satisfied 1.) $\varrho(r)$ is defined on $[r_0 - \eta, r_0]$, $\eta > 0$, $\varrho(r) < \varrho_0$,

$\overline{\lim\limits_{r \to r_0 - 0}} \varrho(r) = \varrho_0$

2.) $\varrho(r)$ is defined for $r > r_0$, $\varrho(r) > \varrho_0$

3.) $\varrho(r)$ is defined for $r < r_0$, $\varrho(r) > \varrho_0$

4.) $\varrho(r)$ is defined for $r > r_0$, $\varrho(r) < \varrho_0$.

Several conclusions are obtained from the theorem, in particular results of M.G. Khaplanov [Ref 1]. Six theorems are given in the paper. The author mentions I.M. Gel'fand. - There are 10 references, 7 of which are Soviet, 1 German, 1 Spanish and 1 Polish.

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Chernovtsy State University)

PRESENTED: February 28, 1959, by V.I. Smirnov, Academician

SUBMITTED: February 19, 1959

Card 2/2

FISHMAN, K.M.; MAKOVOZ, Yu.I.

Completeness of neighborhood systems in denumerably normed space.
Dokl.AN SSSR 138 no.1:70-72 My-Je '61. (MIRA 14:4)

1. Chernovitskiy gosudarstvennyy universitet. Predstavleno
akademikom V.I.Smirnovym.

(Topology) (Spaces, Generalized)

FISHMAN, K.M.; SAS'KO, G.M.

On certain systems of functions forming quasi-exponential bases in spaces of analytic functions in a circle. Dokl. AN SSSR 146 no.2:314-317 S '62. (MIRA 15:9)

1. Chernovitskiy gosudarstvennyy universitet. Predstavleno akademikom V.I. Smirnovym.
(Functions) (Banach spaces)

FISHMAN, K.M.

Systems forming quasi-exponential bases in spaces of analytic functions in circular rings. Sib. mat. zhur. 4 no.4:935-943 Jl-Ag '63.
(MIRA 16:9)

FISHMAN, K.M.

Equivalence of differential operators in the space of functions analytic in a circle. Usp. mat. nauk 19 no.5:143-147 S-O '64.
(MIRA 17:11)

FISHMAN, K.M.

Expansion of certain classes of analytic functions in generalized Maclaurin series. Usp. mat. nauk 20 no.1:231-234 Ja-F '65.
(MIRA 18:4)

FISHMAN, K.M. (Chernovtsy)

Equivalence of certain linear operators in an analytic space.
Mat. sbor. 68 no.1:63-74 S '65. (MIRA 18:9)

FISHMAN, K.M.; NAGNIBIDA, N.I.

Base composed of generalized primitives. Sib. mat. zhur. 6 no.4: 944-946 Jl-Ag '65. (MIRA 18:10)

FISHMAN, K.M.

Equivalence of certain linear operators in a Köthe space.
Sib. mat. zhur. 6 no.6:1388-1394 N-D '65.
(MIRA 18:12)

L 25642-66 EWT(d) IJP(c)

ACC NR: AP6016074 SOURCE CODE: UR/0039/65/068/001/0063/0074

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AUTHOR: **Fishman, K. M.** (Chernovtsy)

ORG: none

TITLE: Equivalence of some linear operators in an analytical space

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SOURCE: Matematicheskiy sbornik, v. 68, no. 1, 1965, 63-74

TOPIC TAGS: linear operator, mathematic matrix, integral operator, differential operator, mathematic space

ABSTRACT: In this article several linear operators are investigated using a method based on matrix representation of continuous linear operators in the space $\mathcal{U}_R$. The operators investigated are as follows: I. a linear operator Δ given in the base elements $\{z^n\}_0^\infty$:

$$\Delta 1 = \xi_0 \cdot 0 = 0, \quad \Delta z^n = \xi_n z^{n-1} \quad (n = 1, 2, \ldots),$$

where ξ_n are complex numbers which satisfy the conditions:

a) $\xi_1 \neq 0$

b) for an arbitrary ρ $(0 < \rho < R)$ there exist $r = r(\rho) < R$ and $C(\rho) > > 0$, such that $|\xi_n| \leq C(r/\rho)^n$ $(n = 0, 1, \ldots)$;

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II. the continuous linear operators $A^{(v)}$ ($v = 0, 1, \ldots, s-1$; s is a natural number), the matrices $[\alpha_{ik}^{(v)}]$ of which in the base $\{z^n\}_0^\infty$ satisfy the conditions:

$$a')\ \alpha_{ik}^{(v)} = 0\ (k \geq i+s-v;\ v = 0, 1, \ldots, s-1),$$
$$b')\ \sup_{k,v} \sum_i |\alpha_{ik}^{(v)}|\ r^{i-k} = p(r) < \infty$$

for all r of some interval (R', R), 0 R' R; and III. the operators B^v ($v = 0, 1, \ldots \ldots, s-1$) the matrices $[\beta_{ik}^{(v)}]$ of which also satisfy conditions a') and b'). Several theorems and corollaries are proved regarding these operators, their relationships to each other, and to certain integral differential operators. The author thanks B. M. Levitan for his attention to the work. Orig. art. has: 2 figures and 21 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 16Mar64 / ORIG REF: 009 / OTH REF: 002

KATUSHKINA, I.F.; KOLCHINSKAYA, L.M.; FISHMAN, K.Ye.

Operation of the continuous polymerizing and spinning unit.
Khim.volok. no.6:68-73 '59. (MIRA 13:5)

1. Kiyevskiy kombinat.
(Nylon)